

IN THE CLAIMS

29. (Amended) A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface; and

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof; and

urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component[.] the flexible contact elements have an original shape;

the flexible contact elements deflect away from the original shape when said flexible contacts contact the electronic components;

the flexible contact elements substantially return to the original shape when the flexible contact elements are withdrawn from contacting the electronic component.

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29. (Replacement) A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface; and

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof; and

urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component the flexible contact elements have an original shape;

the flexible contact elements deflect away from the original shape when said flexible contacts contact the electronic components;

the flexible contact elements substantially return to the original shape when the flexible contact elements are withdrawn from contacting the electronic component.

30. (Amended) A method according to claims [29,] 33, 34, 36, 37, 42 or 43, wherein the electronic device is a semiconductor wafer.

30. (Replacement) A method according to claims 33, 34, 36, 37, 42 or 43, wherein the electronic device is a semiconductor wafer.

32. (Amended) A method according to claims [29,] 33, 34, 36, 37, 42 or 43, wherein the area of the electronic device is a portion of an overall surface area of the electronic device.

32. (Replacement) A method according to claims 33, 34, 36, 37, 42 or 43, wherein the area of the electronic device is a portion of an overall surface area of the electronic device.

33. (Amended) [A method according to claim 29, wherein] A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface;

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof;

urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component, and the electronic device is a printed circuit board.

33. (Replacement) A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface;

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof;

urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component, and the electronic device is a printed circuit board.

34. (Amended) {A method according to claim 29, wherein} A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface;

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof;

urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component, and the electronic device is a packaging substrate.

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34. (Replacement) A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface;

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof;

urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component, and the electronic device is a packaging substrate.

36. (Amended) [A method according to claim 29, wherein] A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface;

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof.

urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component, and the flexible elements further includes a protuberance at an end thereof.

36. (Replacement) A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface;

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof;

urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic

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component, and the flexible elements further includes a protuberance at an end thereof.

37. (Amended) [A method according to claim 29, wherein] A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface;

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof;

urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component, and the flexible elements are shaped wires disposed on the surface of the second substrate.

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37. (Replacement) A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface;

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof;

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urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component, and the flexible elements are shaped wires disposed on the surface of the second substrate.

38. (Amended) A method according to claims [29.] 33, 34, 36, 37, 42 or 43, wherein there are electrical connections between the second substrates and the first substrate.

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38. (Replacement) A method according to claims 33, 34, 36, 37, 42 or 43, wherein there are electrical connections between the second substrates and the first substrate.

39. (Amended) A method according to claims [29.] 33, 34, 36, 37, 42 or 43, wherein the first substrate is a space transformer.

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39. (Replacement) A method according to claims 33, 34, 36, 37, 42 or 43, wherein the first substrate is a space transformer.

40. (Amended) A method according to claims [29.] 33, 34, 36, 37, 42 or 43, wherein the electronic device is a semiconductor wafer; and the flexible contact elements of the second substrate contact individual semiconductor dies on the semiconductor wafer.

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40. (Replacement) A method according to claims 33, 34, 36, 37, 42 or 43, wherein the electronic device is a semiconductor wafer; and the flexible contact elements of the second substrate contact individual semiconductor dies on the semiconductor wafer.

41. (Amended) A method according to claims [29.] 33, 34, 36, 37, 42 or 43, wherein the electronic device is a semiconductor wafer; and the flexible contact elements of the second substrate contacts at least one integrated circuit on the semiconductor wafer.

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41. (Replacement) A method according to claims 33, 34, 36, 37, 42 or 43, wherein the electronic device is a semiconductor wafer; and the flexible contact elements of the second substrate contacts at least one integrated circuit on the semiconductor wafer.

42. (Amended) [A method according to claim 29, wherein] A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface;

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof;

urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component, and, the second substrate is aligned to the [large] first substrate by a socket.

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42. (Replacement) A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface;

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof;

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urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component, and the second substrate is aligned to the [larg] first substrate by a socket.

43. (Amended) [A method according to claim 29, wherein] A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface;

mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof;

urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component, and the first substrate with the second substrate mounted thereto is mounted to an electrical testing apparatus.

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43. (Replacement) A method of probing an electronic device by contacting the electronic device with a plurality of flexible contact elements, the method comprising the steps of:

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providing a first substrate corresponding to an area of the electronic device to be probed, said substrate having a front surface;

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mounting and connecting a second substrate to the front surface of the first substrate, said second substrate having a plurality of flexible contact elements bonded to and extending from a surface thereof;

urging the first substrate and the electronic device towards one another so that the flexible contact elements make contact with the electronic component, and the first substrate with the second substrate mounted thereto is mounted to an electrical testing apparatus.

44. (Amended) A method according to claims [29.] 33, 34, 36, 37, 42 or 43, wherein the first substrate with the second substrate mounted thereto is mounted to an electrical testing apparatus by a plurality of electrical connections.

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44. (Replacement) A method according to claims 33, 34, 36, 37, 42 or 43, wherein the first substrate with the second substrate mounted thereto is mounted to an electrical testing apparatus by a plurality of electrical connections.

45. (Amended) A probe card assembly comprising:

? a probe card;

[a plurality of probe elements;]

a [space transformer] first substrate having a top surface, a bottom surface, a first plurality of terminals disposed on the top surface, and a second plurality of terminals disposed on the bottom surface;

at least one second substrate having a top surface[,] and a bottom surface;

means for effecting electrical connections between the at least one second substrate and the [space transformer] first substrate; and

a plurality of probe elements disposed on the top surface of the at least one [first] second substrate[.];

the probe elements are free-standing flexible conductors.

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45. (Replacement) A probe card assembly comprising:

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a probe card;

a first substrate having a top surface, a bottom surface, a first plurality of terminals disposed on the top surface, and a second plurality of terminals disposed on the bottom surface;

at least one second substrate having a top surface and a bottom surface;

? means for effecting electrical connections between the at least one second substrate and the first substrate; and

a plurality of probe elements disposed on the top surface of the at least one second substrate;

the probe elements are free-standing flexible conductors.

47. (Amended) A probe card assembly, according to claim [46.] 45, wherein tip structures are mounted to ends of the plurality of free-standing flexible conductors.

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47. (Replacement) A probe card assembly, according to claim 45, wherein tip structures are mounted to ends of the plurality of free-standing flexible conductors.

48. (Amended) A probe card assembly, according to claim [46,] 45, wherein [characterized in that:] the free-standing flexible conductor further [indicates] includes a protuberance at an end thereof.

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48. (Replacement) A probe card assembly, according to claim 45, wherein the free-standing flexible conductor further includes a protuberance at an end thereof.

49. (Amended) A structure comprising:

[A] a plurality of first substrates adapted [in use] to be mounted [as a substrate tiles] to a second substrate[.]; [comprising:]

each of the first substrates having two opposite surfaces;

free standing flexible [contacts] conductors extending from one of the two surfaces;

terminals on an other of the two opposite surfaces; [and]

means, within each of the first substrates, for connecting the terminals to the contacts[.] ; and

the plurality of the first substrates are mounted on to the second substrate.

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49. (Replacement) A structure comprising:

a plurality of first substrates adapted to be mounted to a second substrate;

each of the first substrates having two opposite surfaces;

free standing flexible conductors extending from one of the two surfaces;

terminals on another of the two opposite surfaces;

means, within each of the first substrates, for connecting the terminals to the contacts; and

the plurality of the first substrates are mounted on to the second substrate.

50. (Amended) A method according to claims [29,] 33, 34, 36, 37, 42 or 43, further including plurality of groups of said plurality of the flexible electrical contact elements.

50. (Replacement) A method according to claims 33, 34, 36, 37, 42 or 43, further including plurality of groups of said plurality of the flexible electrical contact elements.

51. (Amended) A method according to claims [29] 33, 34, 36, 37, 42 or 43, [or 49,] wherein there is at least one of said second substrates mounted to said first substrate.

51. (Replacement) A method according to claims 33, 34, 36, 37, 42 or 43, wherein there is at least one of said second substrates mounted to said first substrate.

52. (Amended) A method according to claims [27 to 28] 33, 34, 36, 37, 42 or 43, [or 49,] wherein there are a plurality of said second substrates mounted to said first substrate.